

## Stress and Rhythm in the Nigerian Accent of English

Inyang M. Udofot

### Abstract

This paper undertakes the investigation of the disposition to stress of Nigerian users of English and the nature of Spoken Nigerian English rhythm. The subjects of the study are sixty Nigerians of varied socio-economic, educational and ethnolinguistic backgrounds and a native (British) English speaker whose productions from reading a passage and speaking freely for three minutes on a common topic were analysed perceptually, statistically and acoustically using the Wilcoxon Matched Pairs Signed Ranks Test, the Analysis of Variance (ANOVA) and the Fast Fourier Transform (FFT) routine in the Signalize software with a Performa 450 computer. The study identifies three varieties of Spoken Nigerian English characterized by their disposition to stress and speech rhythm: the Nonstandard, the Standard and the Sophisticated Varieties which are individually different but collectively similar yet different from Standard British English represented by the control's performance. The common performance features include a preponderance of stressed syllables and a tendency to have more or less even syllable durations and longer utterance durations than the native speaker. These features which are traceable to non-reduction of vowels in unstressed positions tend to characterise the Nigerian accent of English.

### Introduction

The English Language, a generally accepted stress-timed language (cf. Pike, 1945; Abercrombie, 1967) which was introduced into Nigeria through Colonialism and missionary activities is now spoken in Nigeria as in other African and South Asian countries which were colonized by the British. The many years of contact between English and the many indigenous Nigerian languages has resulted in a nativised variety- Nigerian English -which is one of the New World Englishes (cf. Platt, Weber & Ho, 1984). There have been a reasonable number of scholarly works on Nigerian English. A few of these deal with the phonology of this relatively virgin area. Some of these works namely: Tiffen (1974), Adetugbo (1977), Bamgbose (1982), Jibril (1982), Eka (1985), Udofot (1993,1997) have made reference to rhythm as the most acute problem area worthy of detailed study.

There have also been a few descriptions of the rhythm of Nigerian English. Adetugbo (1977, pp.12-15) describes it as syllable-timed because of the influence of the syllable-timing of Nigerian languages. This description is upheld by Bamgbose (1982, pp.42) and Jowitt (1991, p.97). Jibril (1982, p. 275) disputes the description of Nigerian English as syllable-timed. He argues that English has a 'tendency to re-distribute accents according to the length of the utterances so that two accents may not occur next to each other' (p. 274)<sup>1</sup> and that 'this important difference from Nigerian English' is not fairly accounted for by the notion of stress versus syllable-timing' (p. 275). The implication of this for the traditional description of Nigerian English as syllable-timed is clear.



Eka (1993, pp.1-11) also rejects the syllable-timing description and goes further to describe the rhythm of the Educated Variety of Spoken Nigerian English as 'inelastic-timed' because of a tendency to have more prominent syllables than the native speaker. The many prominent syllables are ascribed to an inability to 'squeeze in' or 'stretch out' the syllables in a given rhythm unit within the given time as a native speaker who uses elastic-timed rhythm would do. Eka's (1985) subjects were penultimate year undergraduates studying English and Education with English as the major teaching subject. They are comparable to Banjo's (1971) Variety III who approximate Standard Nigerian Spoken English. Udofot (1993) studied the rhythm of the spoken English of final year secondary school students whose level of spoken English can be compared to Banjo's (1971) Variety II which approximate Standard Spoken Nigerian English. The analysis confirmed the preponderance of prominent syllables and a tendency towards a syllable-timed rhythm not syllable-timing in its pure form.

Udofot (1997) also notes the proliferation of prominent syllables in the speech of Educated Nigerians of varied socio-economic and educational backgrounds and puts this situation down to a tendency to speak both long and short vowels with equal duration. The study concludes that the rhythm of Educated Spoken Nigerian English sounds more like the pulsations of an African drum, heard as rhythmic, but hardly varying its tempo.

The exact nature of the rhythm of the Nigerian accent of English therefore appears controversial. This study aims at determining the exact nature of Spoken Nigerian English rhythm as well as identifying the features of the rhythmic patterning. An attempt is also made to isolate differences from the viewpoint of the placement to the overall rhythm of the Nigerian accent of English. The basic assumption of the study is that the Nigerian accent of English is a continuum made up of three varieties which we name the Nonstandard, the Standard and the Sophisticated. The Nonstandard is comparable to Banjo's (1971) Variety I, the Standard to Banjo's Variety II and the Sophisticated to Banjo's Variety III and Jibril's (1986) Sophisticated Variety. It is also assumed that the Varieties though individually different are collectively different in rhythm from Standard British English represented by the control's output and that there are common core features which unite the varieties of the Nigerian accent of English.

#### Notation

This paper subscribes to Schane's view that "the accentual patterns of English words have their basis in rhythm, that is the alternation in prominence of syllables" (Schane, 1979, p.591). This is based on the view of rhythm proposed by Liberman (1975) and later developed into a theory by Liberman and Prince (1977). In this system, syllables are represented only as having strong (S) and weak (W) stress<sup>2</sup>. For economy of space and ease of representation, we have adopted the notation of Schane (1979)<sup>3</sup>. This means that we shall view rhythm as resulting mainly from the alternation between strong and weak syllables. Since this is a synchronic study, we do not apply the Iambic Reversal Rule and the Principle of Rhythmic Alternation (PRA)<sup>4</sup> where there are contiguous strong syllables as this helps to highlight the similarities or differences between the performance of the experimental group and the control's. We simply describe the rhythm of the Nigerian accent of English using the notation of Schane (1979) where S and W are assigned directly to base forms and suffixes taking into account both syllable structure and morphological information.



### Research Procedure

The subjects of the study were sixty Nigerians of varied linguistic and socio-economic backgrounds selected by a stratified random sampling technique from twenty linguistic groups in Nigeria and a native (British) English speaker. The experimental group was selected using *education in English* as the main yardstick for stratification and the level of general education, linguistic group and age as intervening variables.

The subjects so selected were divided into three groups. Group One consisted of those who have been exposed to formal English learning and use for nine to twelve years covering primary and post-primary education or training. Group Two comprised those who have had or were in the process of having tertiary education and have been exposed to English Language learning and use for twelve to fifteen years. Group Three was made up of those who have been exposed to English language learning and use for at least fifteen years and in addition to having had tertiary education have had some specialised training in the pronunciation of English and also use English for their daily official purposes. An attempt was made to reflect the multilingual nature of the Nigerian society by selecting the subjects from both federal and state establishments.

Our final sample consisted of twelve university lecturers, eighteen undergraduates, three college lecturers, four secondary school teachers, four administrative officers, five broadcasters, two bankers, two librarians, two television/radio programmes producers, four clerical and technical staff, two fashion designers and two members of the National Youth Service Corps. Their educational qualifications ranged from the General Certificate in Education to the Doctor aged sixty years who was born and brought up in England. She had her primary I secondary and university education in England and her post graduate education in America. She has a clearly distinguishable British Public School accent although she has lived and worked in Nigeria for twenty years.

Each subject was required to speak freely on the topic: 'The high cost of living in Nigeria' for about three minutes using a cartoon from *Vanguard Newspaper* of Friday November 4, 1994 for guidance. Next, the informants were required to read through a passage (see appendix I) at normal conversational speed. Each subject had five minutes to organize himself and get used to the passage. The second or third performance of each subject (including the control) was tape-recorded depending on which one was better.

The tape recorded productions were played back. The accentual patterns of each informant were indicated both in the spoken prose (or deliberate reading) and the spontaneous productions. In the spoken prose, the production of the control was used as expected frequency and the difference of each subject's performance from that of the control was calculated using the Wilcoxon Matched Pairs Signed Ranks Test. For the spontaneous production, the stress patterns of members of the experimental group and that of the control were calculated. Each subject's output was compared to a control performance expected from a metrical representation of his output. The rank of difference was then calculated using the Wilcoxon statistical test. The Wilcoxon statistical test was used to test whether there is a significant difference between the rhythm of the Nigerian Accent of English and the Spoken English of a native speaker represented by the control's performance while the Analysis of Variance (AVONA) statistical test was used to determine whether there is a significant difference between the performance of the varieties that make up the continuum -Spoken Nigerian English.



To corroborate our perceptual analysis, we selected a sentence from the passage of spoken prose: 'Mosquito went away' and fed the productions of one representative of each of the varieties as well as the performance of the control through a Mac recorder into a Macintosh (Performa 450) computer. The choice of the sentence from the passage of spoken prose rather than excerpts from the spontaneous production was to make for uniformity. The productions of the experimental group and the control were digitised and analysed using the FFT (Fast Fourier Transform) routine included in the SignalyzeÖ (Signal Analysis) package. The duration of all the syllables in the utterance (UTTI) as well as the durations of the word 'mosquito' as produced in connected speech by the representatives of the varieties and the control were calculated. The overall duration of the utterance was also measured.

## Data Analysis and Discussion

### Perceptual and Statistical Analyses

We observed that the stress patterns of our subjects in many words were different from that of the control. In some words certain syllables were stressed in positions other than those stressed by the control. For instance, for the word 'humiliated', while the majority of subjects particularly of the Nonstandard Variety had 'humiliated' {WWSWS), the control had 'humiliated' (WSWWW). For the words 'mosquito' and 'landlord', the majority of the subjects had  $\phi$ mosquito or  $\phi$ mosquito and 'landlord' (SWW or SWS and SS) while the control had mosquito (WSW) and  $\phi$ landlord (SW). Our subjects also showed a tendency to have more prominent syllables than the control in both the spoken prose and the spontaneous production.

### Spoken Prose

In the spoken prose, the control stressed 61 syllables out of the 142 syllables in the passage. One subject in the Sophisticated Variety had 63 stressed syllables which was the closest performance to that of the control while the farthest performance from that of the control was 121 stressed syllables and this was recorded by a member of the Nonstandard Variety. It was observed that none of the subjects had fewer stressed syllables than the control. In the Sophisticated Variety, the highest number of additional syllables was 7 (11.4%) more than that of the control. The total sum of the difference between the observed and the expected performance (D-E) was 100 while the sum of the rank of difference in the Wilcoxon Matched Pairs Signed Ranks Test was 210 showing a significant deviation from the performance of the control.

In the Standard variety, the highest number of additional accented syllables recorded was 14 (23%) higher than the performance of the control while the least number of additional syllables recorded was 8 (one higher than the highest number in the Sophisticated Variety). Thus, the performance of the Standard Variety informants has shown roughly as much percentage deviation from the Sophisticated Variety as the Standard variety has deviated from the control's performance. The total difference between the expected and observed performances of the group was 193 and the rank of difference was 210, again a high and positive value showing a significant difference between the performance of this group and the control's performance.



The Non Standard Variety recorded the highest deviation from the control's performance (between 15 and 60 additional accented syllables his is 98% higher than the number the control had. In other words, the Non Standard Variety of Spoken Nigerian English had subjects whose performances showed almost double the number of stressed syllables than the control had. This shows a tendency to stress almost every syllable in an utterance.

Comparatively, the number of stressed syllables recorded in the performance of this group is 77% higher than the percentage difference in the Standard Variety, 88% higher than the percentage difference in the Sophisticated Variety and 98% higher than the control's performance. The total sum of the difference between the observed and expected performance was 447 while the rank of difference was 210 showing a positive and high rank of difference from the performance of the control.

Since all the subjects read the same passage of spoken prose, we compared the performance of the three groups using the Analysis of Variance (ANOVA)<sup>5</sup> statistical measurement. From the analysis, the calculated (F1) value was 21.77 while F critical value at 5% confidence level F (2.57) was 3.15 which is less than the calculated value. This implies that the Nonstandard, Standard and Sophisticated Varieties are significantly different from one another and cannot be said to belong to the same normal population. We therefore suggest that the variations noticed in the performances of the individuals in each group are not due to chance but that the varieties of Spoken Nigerian English identified exist and differ in their stress patterning and therefore rhythm from one another and from the performance of a native speaker.

### **Spontaneous Production**

The performance in the spontaneous productions can be said to corroborate that of the spoken prose; there were basically more stressed syllables than expected in each case. Each production was judged on its own merit: thus the percentage difference of each group from the control's performance was not calculated. We however observed that some subjects whose performances were closer to the expected in the spoken prose were not so close in the spontaneous production. Only two out of the 60 subjects in the three difference had a more or less even performance in both exposures. We also noted a wider percentage difference within the groups. For instance, the percentage difference between the least and the highest number in the Sophisticated Variety was 84%, the Standard Variety had 70% while the Nonstandard Variety was 83% as against 11.4%, 23% and 98% observed in the spoken prose.

It has been observed that subjects tend to perform better in spoken prose than in spontaneous productions and that performances in spontaneous productions are closer to the subjects' overall true ability to use spoken language (Udofot, 1997, p. 23). Some of the subjects made longer speeches than others. We transcribed a maximum of one page of the production of each informant. Each production was taken on its own merit and the expected performance was worked out by making a metrical representation of the passage. We also used the Wilcoxon test to determine the rank of difference. The sum of the ranks in the three varieties was again high (210) and positive. There were no negative values observed which implies that all the subjects had more stressed syllables than expected, that is, more than the number of stressed syllables a native speaker would have in an unmarked rendering.



The number of extra stressed syllables in the Sophisticated Variety ranged from 5 to 33 while the number in the Standard Variety ranged from 7 to 34. This was the least percentage difference in the performance of the subjects. This notwithstanding, the percentage difference between the best and the worst performances in the group (79%) is high compared to a percentage difference of 23% which was observed in the spoken prose. In the Nonstandard Variety, the number of extra stressed syllables ranged from 15 to 90 with the percentage difference between the least and the highest number being 83% as against 93% in the spoken prose. This group actually exhibited the tendency of making prominent almost every syllable in an utterance (syllable-timing).

#### Acoustic Analysis

With regard to duration - our main correlate of stress - we observed that of the six syllables in UTT1: 'Mosquito went away', the syllable /went/ had the highest mean duration of 237.24 milliseconds. This was followed by the syllable /məʃ/ with a mean duration of 222.2 milliseconds and /wel/ with a mean duration 1193.99 milliseconds. The lowest mean duration was recorded in respect of /ki:t/. Similar differences in duration were recorded in selected words and for the whole utterance. Details of the performance of representative members of the experimental group and the control obtained through the acoustic analysis of parts and the whole of UTT 1 are shown in Tables A - C below:

**Table 1: Duration in Educated Spoken Nigerian English**

1A: UTT1: Syllable Duration in Milliseconds

Informants	[məʃ]	[ki:t]	[əʊ]	[went]	[ə]	[wel]
MS62 Control	198.73	139.83	154.30	197.25	75.31	251.08
MS 61 Variety III	216.84	117.84	198.69	212.26	130.93	162.56
MS 52 Variety II	201.74	57.9	123.56	247.12	140.01	201.01
MS 53 Variety I	248.02	113.41	182.69	252.34	168.95	218.40
Mean Duration	222.2	96.25	168.31	237.24	146.63	193.99

#### Key:

\* The transcription does not represent the pronunciation of any of the subjects but just a phonetic representation of the syllables.

MS= Main Study Informant

1B: UTT1: Word Duration in Milliseconds

Informants	Word	Duration
MS 62 (Control)	Mosquito	555.36 msec
MS 61 (Variety III)	Mosquito	623.28 msec
MS 52 (Variety II)	Mosquito	574.14 msec
MS 53 (Variety I)	Mosquito	651.24 msec
Mean		619.22 msec

As was the case with the unstressed syllables, the performance of MS61, the representative of the Sophisticated Variety is the closest to that of the control. We therefore, suggest that in the Nigerian Accent of English, the duration of unstressed syllables is longer than that of a native speaker represented by the control while the duration of stressed syllables is shorter resulting in a tendency to have more or less even duration (cf. Jowitt, 1991, p97). This implies that syllables that should not normally be given prominence in a native speaker's speech are emphasized in the speech of the experimental group in the proliferation of prominent syllables which characterizes nonnative Englishes including Nigerian English (cf. Bansal, 1990; Martens, 1990; Landham, 1990; Udofot, 1997)<sup>6</sup>. This tendency to stress more syllables than the native speaker is more pronounced as one descends the ladder of quality from Sophisticated to the Standard to the Non Standard.

The utterance UTT1 is a stretch that can be said with one breath by a normal speaker. We noted again that the control used less time (1123.02 msec or 1.12secs) to produce the utterance while the three representative members of the experimental group produced the same utterance with a duration ranging from 1263.11 msec (1.3 secs) through 2107.4 msec (2.0 secs) to 1521.25 msec (1.5 secs) representing the productions of MS61, the representative of the Sophisticated Variety; MS52 the representative of the Standard Variety and MS52 the representative of the Non Standard Variety. The control also took less time than members of the experimental group to produce the word 'mosquito' (see Table 1B).

It has therefore been shown that in the Nigerian Accent of English, syllable and utterance durations are relatively longer than what obtains in a native variety of English represented by the controls' output. This rather long duration appears to be caused by the tendency to produce both reduce and short vowels with normal duration. This tendency improves as one moves up the ladder of quality from Nonstandard to Sophisticated. We also note that the performance of our Standard Variety (Variety II representative) speaker is not identical with that of the control contrary of Ufomata (1990, p. 215) which asserts that the stress pattern of individual words in the speech of Nigerians who speak the standard form of Nigerian English is generally the same as in R.P.

#### Summary, Conclusion and Suggestions for Further Research

This study has acknowledged the existing controversy over the description of the rhythm of the Nigerian Accent of English and undertaken an investigation into the nature of Nigerian English rhythm. After perceptual, statistical and acoustic analyses of the output of the experimental group and the control's certain general tendencies were observed. First, we noted the presence of more stressed syllables in the output of the experimental group as compared to that of the native speaker. This corroborates the observations of Eka (1985, 1993), Udofot (1991) and Jowitt (1991). Next we observed a difference in the arrangement of S and W syllables from that of the native speaker. This also recalls Jowitt (1991) which notes that in popular Nigerian English there is 'a tendency to shift primary accents (stress) to the rights'. The rhythmic pattern produced does not consistently alternate between strong and weak syllables as suggested by the Metrical Theory and exemplified by the production of the native speaker (see appendix I). This suggests that the rhythmic pattern of spoken Nigerian English cannot, like that of the control, cannot be said to be stress-timed.



The acoustic analysis showed that members of the experimental group used a longer time to produce unstressed syllables, words and utterances and a shorter time to produce stressed syllables than the native speaker resulting in a tendency to have even duration. Only some members of the Non Standard variety used close to double the time used by the control. If the rhythm of Spoken Nigerian English were syllable-time argues Eka (1993, pp.1-11) a cross section of the members of the experimental group would have used double or close to double the time used by the control. However, syllable-timing, usually, are terms referring to trends or underlying patterns. In the real world neither the native speaker's speech is 100% stress-timed nor any speaker's fully syllable-timed. The syllable-timed rhythm appears to be very much in evidence in the performance of Variety 1 the Non Standard variety of the Nigerian Accent of English. This tendency improves as one moves up the ladder but the performance of the Sophisticated speaker does not approximate stress-timing as in the control's speech.

Our statistical analysis showed that our three varieties are significantly different from one another and collectively different from the control's performance both qualitatively and quantitatively. The three varieties however have a similar tendency to stress many syllables in an utterance. Since syllable durations in the Nigerian Accent of English hardly vary the distribution between full and reduced vowels, Spoken Nigerian English sounds more like the pulsations of an African drum heard as rhythmic but rarely varying its tempo. Perhaps the continuum-Spoken Nigerian English may be more amenable to the full-vowel-timing description since the full vowel-timing theory relies neither on the number of accents nor the number of syllables but on the pattern formed by the mixture of full and reduced vowels (Bolinger, 1981). This paper therefore suggests that more work be done on Nigerian English rhythm using a wider population and spontaneous speech with a view suggesting full-vowel timing as an alternate description of the rhythm of the Nigerian Accent of English. Also the paper suggests that rather than strain to teach Nigerian Children to produce a stress-timing rhythm of English should aim at the performance of the Standard Variety as a Nigerian model.

#### Endnotes

1. Compare with the Iambic Reversal Rules of the Metrical Phonology (See No 4).
2. Metrical Phonology is a reaction against Generative Phonology as expounded by Chomsky and Halle (1968). By representing syllables as strong and weak, the number of stress levels in SPE is eliminated.
3. According to Schane's (1979, pp. 587-595) version of the Metrical Theory, S positions are occupied by accented syllables, W positions by unaccented syllables or accented syllables of monosyllabic words. S and W alternate but SWW, WWS and occasionally SWWW configurations occur in specific environments.
4. Both the Iambic Reversal Rule and the Principle Rhythmic Alternation (PRA) are applied where there are contiguous S's as in *thirteen men* which becomes *thirteen men so* that the natural SW rhythmic alternation is maintained.
5. The Analysis of variance (ANOVA) test determines whether the variation in the performance of the varieties is significant. It is used when there are more than two samples to compare (cf. Buffer, 1985, pp.129-135).
6. This characteristic is observed in Indian English by Bansal (1990), in 'Minglish' the North German variety of English by Martens (1990) and in South African Black English by Landham (1990).



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